R-042. Outcome of pregnancies obtained by donor insemination with frozen sperm during the last six years (1991-1996)

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Introduction: Artificial donor insemination (AID) was carried out between 1984 and 1990 with native spermatozoa, and has been carried out with frozen spermatozoa in cases of severe oligozoospermia and azoospermia since 1991 at the Department of Obstetrics and Gynaecology, Albert Szent-Györgyi Medical University, Szeged, Hungary.

Materials and methods: Computer-controlled semen freezing was performed using Glacier 1510® equipment (SYLAB). Prior to insemination with donor spermatozoa, the couples underwent infertility examinations according to WHO guidelines. The method of fast thawing was used for reactivating the semen. The cycles were monitored (folliculometry, serum oestradiol concentration) and ovulation induction was carried out (clomiphene and gonadotrophin).

Results: Semen was acceptable for performing AID when the ratio of recovered motile spermatozoa was ≥60%. In 1991, 35 out of 86 infertile women became pregnant after AID treatment. In 1992, 1993, 1994, 1995 and 1996 these values were 88 out of 210, 84 out of 202, 70 out of 202, 56 out of 150 and 54 out of 142 women respectively. Out of 387 pregnancies there were 354 singletons, 27 twins and six triplets. Spontaneous pregnancy loss was 27 in the first trimester and eight in the second trimester (9.04%). The premature birth rate was 8.7%.

Conclusions: AID treatment is only possible using frozen spermatozoa because of the danger of HIV infection. Cryodamage can be avoided by computer-controlled semen freezing and by using cryoprotectants. The pregnancy rate achieved in three treated cycles was 39.01% per woman during the last 6 years. Despite the advance of new assisted reproduction techniques (ICSI, micro-epididymal sperm aspiration, testicular sperm aspiration), donor insemination will still be carried out in the future for the treatment of male infertility.

R-043. High fertilization rate using testicular spermatids compared with ejaculated spermatids

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Introduction: Successful pregnancies have been achieved using spermatids isolated from either ejaculate or testis. In this study we compared the fertilization efficiency of round spermatids isolated from ejaculate and those isolated from testis.

Materials and methods: In a randomized study, 42 azoospermic patients (19 had Sertoli cell-only syndrome and 23 had maturation arrest) underwent spermatid injection. An extensive examination of ejaculates after Percoll gradient (45/90%) separation revealed the presence of round spermatids in only 17 patients, while the remaining 25 had no spermatids. Round spermatids were isolated from the ejaculates of 17 patients and used for injection. The other 25 patients underwent testicular sperm extraction to retrieve sperm cells. In all, round spermatids were found in 25 patients and isolated for intracytoplasmic injection.

Results: A total of 152 metaphase II oocytes recovered from the partners of the 17 patients were injected by ejaculate round spermatids (group A), while 185 metaphase II oocytes retrieved from the partners of the 25 patients were injected by testicular round spermatids (group B). At 14 h after injection, 64 oocytes in group A (42.1%) and 104 oocytes (56.2%) in group B had fertilized normally, as shown by the presence of two pronuclei. All zygotes were incubated at 37°C with 5% CO_2 in air. At 2 days following injection, 48 (75%) cleaving embryos were observed in group A and 80 (77%) in group B. Embryo transfer took place 48 h after injection (the mean numbers of embryos transferred per patient were 2.5 and 3.2 for groups A and B respectively). Three pregnancies were established, one in group A and two in group B. The three pregnancies are ongoing.

Conclusion: These results could indicate that the efficiency of testicular round spermatids is significantly higher than those isolated from ejaculate ($P \leq 0.014$). This may suggest that ejaculate spermatids could have some degenerative factors affecting the outcome of fertilization. However, further investigations are still needed.

R-044. Limiting the number of embryos transferred does not significantly influence the outcome of conventional IVF treatment

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Introduction: The occurrence of multifetal (particularly triplets and higher order) pregnancies has been held responsible for a usually unaccounted component of the total cost of IVF treatment, i.e. the use of neonatal intensive care unit facilities. In November 1995, a new policy of strictly limiting the number of embryos transferred to a maximum of two was adopted in our programme. In this retrospective study we compared the outcome of transferring more than two embryos (maximum 4) versus a transfer of two embryos in terms of implantation rate, pregnancy rate and multiple pregnancy rate.

Materials and methods: IVF treatment cycles between 1 January 1994 and 31 December 1996 were analysed. There were no significant differences between group I (transfer of three or four embryos; $n = 70$) and group II (transfer of two embryos; $n = 76$) with respect to serum oestradiol concentration, endometrial thickness on the day of HCG administration and the number of retrieved oocytes. The mean embryo score (MES, defined as the cumulated embryo score divided by the number of embryos transferred) was calculated. The endpoints were implantation rate, pregnancy rate and multiple pregnancy rate (the latter two confirmed by ultrasound).

Results: There was no statistically significant difference in the quality of embryos transferred between groups I and II [MES 11.61 (range 3–19) and 12.69 (range 3.5–28) respectively]. The same was true for the implantation rate and pregnancy rate between the two groups (30 and 30% respectively, group I; 26.3 and 25% respectively, group II; respectively). On the other hand, a comparison of the multiple pregnancy rate showed a decrease in group II. In group I there were four twin and two triplet pregnancies (multiple pregnancy rate 32%), and in group II four twin pregnancies (multiple pregnancy rate 19%).

Conclusion: Limiting the number of embryos transferred to two does not affect the outcome of IVF treatment in terms of implantation rate and pregnancy rate. Furthermore, our study shows a clear trend towards fewer multiple pregnancies in group II. In particular triplets would be avoided. This might contribute to a better outcome of IVF children, resulting in a reduction in the total medical costs by using neonatal intensive care units less often.

R-045. Prevalence of abnormalities of the uterine cavity in patients undergoing IVF and embryo transfer

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The impact of undetected uterine abnormalities on the success of IVF and embryo transfer is subject to great controversy. The aim of this study was to evaluate the prevalence and type of abnormalities of the uterine cavity in women suffering from primary and secondary infertility undergoing IVF and embryo transfer.

Materials and methods: A retrospective clinical study was performed on 89 patients (mean age 34.6 years, range 25–43) who underwent routine hysteroscopy on an outpatient basis, with two cycles prior to the IVF cycle. All procedures were carried out during the early proliferative phase under mild sedation by a rigid 4 mm hysteroscope with saline solution as a distending medium. In all patients an endometrial biopsy was performed. In all, 43 patients suffered from primary infertility and 46 from secondary infertility. Minor endocavitary abnormalities were treated during the procedure.

Results: Uterine abnormalities were found in 58% of the patients with primary infertility and in 54.3% of those with secondary infertility.

Prevalence of abnormalities of the uterine cavity

	Patients with primary infertility	Patients with secondary infertility
No abnormalities	18 (41.9)	21 (45.7)
Endometritis	8 (18.6)	12 (26.0)
Hyperplasia	8 (18.6)	4 (8.7)
Polyps	4 (9.3)	3 (6.5)
Synechiae	–	4 (8.7)
Septum	1 (2.3)	1 (2.2)
Submucosal myoma	4 (9.3)	1 (2.2)

Values in parentheses are percentages.

Conclusions: Routine hysteroscopy and endometrial biopsy should be performed in the clinical work-up of infertile patients undergoing IVF and embryo transfer because 56.2% of our patients had abnormalities of the uterine cavity.

R-046. Correlation between number, embryo quality and pregnancy outcome in assisted reproduction treatment

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The aim of this study was to evaluate the relationship between the number of embryos transferred, embryo quality and pregnancy rate in our IVF programme. Several parameters were used to determine the optimum number of embryos to transfer: female age, number of previous IVF cycles, number of embryos available and embryo quality.

Materials and methods: A retrospective analysis of 309 IVF cycles was performed between January 1994 and December 1996. Of the IVF cycles leading to embryo transfer, 248 (75.4%) were standard IVF and 61 (24.6%) were ICSI cycles. Cycles were divided into three groups according to the number of embryos transferred: group 1, one to two embryos; group 2, three embryos; and group 3, four to six embryos.

Results:

Results of standard IVF and embryo transfer cycles

	Group 1	Group 2	Group 3
No. of cycles	61	99	88
Age (mean; years)	34	34	35
No. of embryos transferred	96	297	390
No. of good quality embryos (%)	60.0	76.8	72.0
Pregnancy rate (%)	9.8	34.0	40.0
Singletons (%)	100.0	79.0	68.0
Twins (%)	0.0	20.0	17.0
Triplets (%)	0.0	0.0	14.3
Implantation rate (%)	4.5	13.5	11.0

Results of ICSI cycles

	Group 1	Group 2	Group 3
No. of cycles	23	15	23
Age (mean; years)	33.7	31.7	33
No. of embryos transferred	37	45	101
No. of good quality embryos (%)	54.0	58.0	64.0
Pregnancy rate (%)	8.7	26.7	30.0
Singletons (%)	100.0	100.0	100.0

Conclusions: Our data demonstrated that the probability of pregnancy in standard IVF and ICSI depends on embryo quality rather than the number of embryos transferred. The pregnancy rate is reduced when only two embryos are available for transfer, independent of embryo quality. The transfer of more than three embryos does not affect the pregnancy rate but increases the risk of a multiple pregnancy.